Number 128

S.O.B.

June/July, 2006

Notes from Hades

The past month has been very busy for me. The day after I finished issue 127, I was on a plane to London for a week. They kept us pretty busy with work, but I was able to take one evening out and meet up with our very own Chris Geggus. It was a pleasant evening with good conversation and great food (we ate at a place called Rules – highly recommended). He was also able to get me tickets to the Noel Coward play Hay Fever, starring Judi Dench and directed by Peter Hall. It was hilariously funny. Then, just last week, I spent a couple of days in Paris for another meeting. We were actually in one of the suburbs, so I wasn't able to get much sight seeing in, plus it too was a very full conference.

The rest of the family has been busy, as well. Celeste, who teaches music at a local private school, was preparing for her spring program the week I returned from London. Then, the week I was away in Paris, was the graduation ceremony for her school. Things should settle down a bit now that we're into the summer.

The next deadline is **Tuesday, August 1 at 5:00 p.m. Pacific Time.** **Please do not call or fax orders after 10:00 p.m. Pacific time.** My wife and I tend to retire early. Also, if you want to fax in orders, call first. We hang up on unannounced faxes.

Contents

Game Openings

Terrier. Silverton. We will play the advanced game with the Hiring and Advancement optional rule. Have Dave Partridge, Bill Scharf, Andy Lewis, Paul Bolduc, and Michael Longdin, will take up to 1 more.

Hound. Outpost. Dave Partridge, Bill Scharf, Kevin Wilson, Andy Lewis, Michael Lowrey, Andy York, Eric Brosius, and Michael Longdin, will take up to 2 more.

Flea Collar. Kremlin. This game will start when Sled Dog ends. Have Bob Robles, Brendan Whyte, Pasquale Giovine, Chris Geggus, and Mike Scott need 1 more.

Dog Park. Machiavelli. Rules determined by player vote as usual. Have Kevin Wilson, Dave Partridge, Bob Robles, Pasquale Giovine, and Mike Scott, will take up to 3 more.

Wish List

Dune. We will use the optional Lansraad, Ixians, and Bene Tleilaxu powers. Have Kevin Wilson, Bob Robles, and Paul Bolduc, will take up to 3 more (4 if one player plays the Bene Tleilaxu).

History of the World. Have Andy Lewis and Kevin Wilson, will take up to 5 more.

Seafarers of Catan. We will be playing the Oceans scenario. Have Mike Scott , Dave Partridge, and Michael Longdin, need up to 3 more.

Age of Renaissance. This game will start when Dog Chow finishes and will use the European rules and alternate map. Have Michael Longdin and Bob Robles, need up to 4 more.

In general, game ownership is recommended, but not required.

Note that a subscription to S.O.B. is not required to play in a game run by flier, but that a game fee will be charged to non-subbers.

Howling at the Moon
The S.O.B. Letter Column

Bob Robles

Neat idea with solar power! How much of your power needs do you think you can meet with your system?

[We think we'll be able to generate between 60% and 80% of our power from the solar panels. If our roof had better southern facing surfaces, we could generate all of our power that way, but unfortunately, it's not well situated. Even so, we'll still be able to save a lot of money over the long run.]

Only one book review this time around: Quicksilver by Neal Stephenson. A MASSIVE book which is volume one (of 3) of the Baroque cycle. A really cool historical novel set in the age of Newton, Leibniz, Louis the XIVth (the Sun King) and a whole host of historical characters. Great idea. I need to take a break with something else before tackling volume 2, The Confusion and volume 3, The System of the World).

Off the Leash

Advanced Game, Plague, Famine, Special Military Units, Conquest, Moneylenders, Gray Press, Ultimate Victory, Gunboat
Miller Number 2001Fpw10
Spring 1468
Deadline for Summer 1468: 8/1 Tuesday

French and Neapolitan ducats fly, disbanding three Venetian armies. Plague strikes hard.

Fall 1467 Retreats

Naples retreats A Ancona retreats to garrison
Venice retreats F Ionian Sea to Palermo

Builds

		Cost
Fra	Maintains all, builds G Cremona, F Marseilles	33
Nap	Maintains all, builds G Messina	24
Ven	Maintains all, builds A Dalmatia, A Padua, A Treviso, A Hungary, F Durazzo, F Venice, G Tunis	63

Expenditures

France spends 12 ducats to disband Venice A Milan
Naples spends 12 ducats to disband Venice A Capua and Venice A Ancona

Outstanding Debt

Summer 1469: 27 ducats due from Venice (18 borrowed)
Fall 1469: 3 ducats due from Venice (2 borrowed)

Orders

FRANCE ✍: A Swiss supports A Tyrolea, A Tyrolea supports A Pavia to Milan, A Como supports A Pavia to Milan, A Pavia to Milan, A Cremona to Bergamo, A Fornova to Parma, A Genoa supports A Modena, A Modena supports A Fornova to Parma, F Lucca to Ligurian Sea, F Marseilles to Gulf of Lions, G Cremona convert to A

NAPLES ✍: A Pisa to Pistoia, A Bologna supports A Pisa to Pistoia (cut, Dislodged, retreat Urbino, garrison, OTB), A Florence supports A Pisa to Pistoia, F Gulf of Naples supports F Messina to Palermo, F Ionian Sea supports F Messina to Palermo (cut), F Messina to Palermo, G Ancona convert to A, G Messina convert to F

VENICE ✍: A Austria to Carinthia, A Carinthia to Austria, A Hungary to Austria, A Slavonia to Carniola, A Trent supports A Milan to Bergamo (nsu), A Milan to Bergamo (nsu), A Treviso to Verona, A Padua supports A Treviso to Verona, A Mantua supports A Pistoia to Bologna, A Ferrara supports A Pistoia to Bologna, *A Pistoia (EM) to Bologna*, A Dalmatia to Aquila, A Capua holds (nsu), A Albania to Durazzo, A Ancona to Spoleto (nsu), F Venice to Upper Adriatic, F Lower Adriatic transports A Dalmatia to Aquila, F Durazzo to Ionian Sea, F Palermo to Central Mediterranean, F Tunis to Western Mediterranean, G Lucca holds (u), G Tunis convert to fleet

Your treasury:

Summer 1464 Plague

Poor year – Row Only: Bergamo (French A destroyed), Ancona (Neapolitan A destroyed), Parma (French A destroyed), Mantua (Venice A destroyed), Istria

Press

France – Naples: It seems that we have some other time to stop him. He knows that he must finish within Summer 1469, after he will be assassinated by the moneylenders. Quite surely he retreated in Palermo and so you was able to build a fleet in Naples only, but I made one in Marseille and shall be to your orders against his fleets: please give them to it, and eventually to the other one. If you
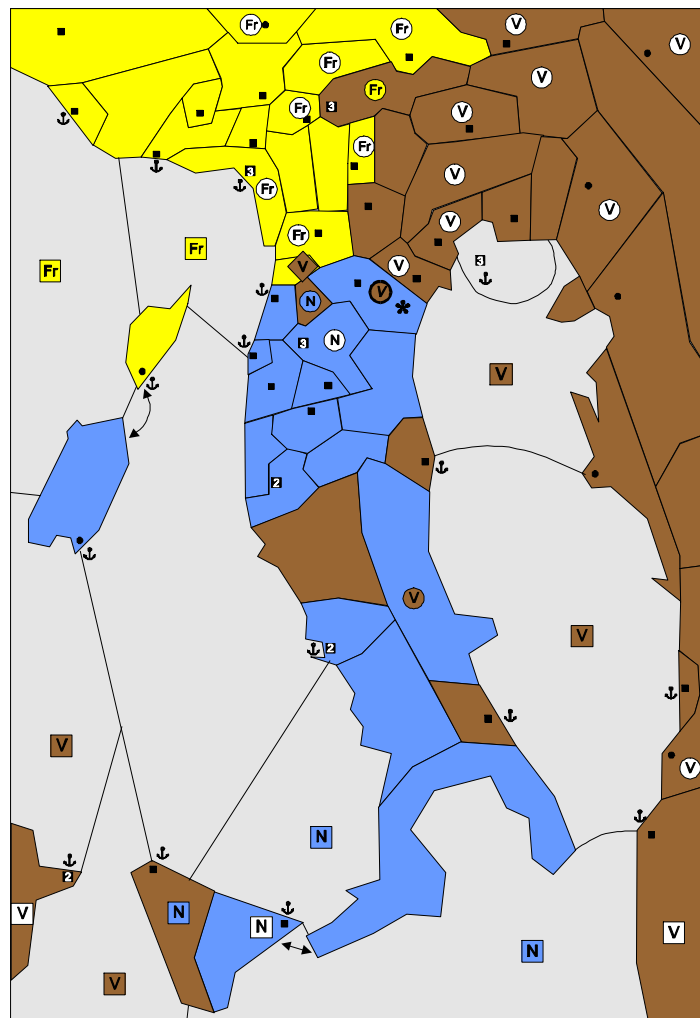
can, and if he is still there, in Spring you also should support my army move from Modena to Lucca. In Summer we ought to coordinate ourselves to attack Mantua: I must see his buildings and shall make a proposal for this next time.

France – Naples: Sorry, but your buildings are incomprehensible: a garrison in Messina instead of a fleet in Naples? And Roma and Perugia free to be taken from Venice? It seems that our time to stop him is going to finish. Any way, if my moves went well, I shall prove for Mantua now. If you can, in summer you also should support my army move from Modena to Lucca. My fleet are in position now: I hope you suggested some move for them.

France – Venice: Will you able to finish within Summer 1469? We shall see how you will prove to do.

France – Venice: Good buildings, isn't it?

Naples – France: I seriously considered disbanding Venice's Army in Man, which would have helped you but left me in more danger. We'll just have to see what Plague does to all of us, and hope we can hold him off for a year. I didn't think about press, or I'd have asked you if you had some small change laying around, as I'd loved to co-ordinate another disbandment.

Dirty Deeds Done Dirt Cheap
Advanced Game, Plague, Famine, Special Military Units, Conquest, Moneylenders, Strategic Movement, Black Press, Standard Victory
Miller Number 2000Fpw10
Fall 1057
Deadline for Winter/Spring 1058 8/1, Tuesday

Venetian and Byzantine spies gain wind of the Muslim plot and borrow ducats to foil it. The Pope makes gains against Pisa, and both suffer the wrath of God.

Addendum

The Pisan unit in Sienna is actually an army, not a fleet. It was built in the spring as an army and was noted in the moves as an army, but I mistakenly labeled it a fleet on the map. That mistake was then carried over into the moves in the summer. It has been corrected below.

Summer 1057 Retreats

Pisa retreats A Pisa to Lucca

Expenditures

Byzantines borrow 25 ducats for 2 years (38 ducats due Fall 1059). Spends 12 ducats to disband Muslim F Ionian Sea and 9 ducats to counterbribe F Durazzo.

Muslims borrow 25 ducats for 2 years (38 ducats due Fall 1059). Spends 21 ducats to buy Byzantine F Durazzo (fails) and spends 3 ducats to counterbribe F Ligurian Sea

Pisa borrows 3 ducats for 1 year (4 ducats due Fall 1058).

Venice borrows 2 ducats for 2 years (3 ducats due Fall 1059). Spends 12 ducats to disband Muslim F Lower Adriatic

Outstanding Debt

Fall 1058: 33 ducats due from Pisa (22 borrowed), 18 ducats due from Venice (12 borrowed), 4 ducats due from Pisa, (3 borrowed)

Fall 1059: 38 ducats due from the Byzantines (25 borrowed), 38 ducats due from the Muslims (25 borrowed), 3 ducats due from Venice (2 borrowed)

Orders

BYZANTINES (Robles):   A Bosnia to HERZEGOVINA, *F (EM) DURAZZO holds*

MUSLIMS (Wilson):   F Aquila to ANCONA, F Ligurian Sea to GENOA, F Gulf of Naples to TYRRHENIAN SEA, F Ionian Sea to Durazzo (nsu), F (EM) Durazzo to Albania (nsu), F Lower Adriatic to Ragusa (nsu)

PAPACY (Scott):   A Patrimony to SIENNA, A FLORENCE supports A Patrimony to Sienna, *A (EM) PISA supports A Patrimony to Sienna*, G SIENNA supports A Patrimony to Sienna

PISA (Roalstad):   A PARMA supports A Bergamo to Cremona, A Bergamo to CREMONA, A Bologna supports A Lucca to Modena (DISLODGED, retreat Pistoia, Lucca, Urbino, garrison, OTB), A Lucca to MODENA, *A (EM) Sienna to AREZZO*

VENICE (Partridge):   A MANTUA supports F Ferrara to Bologna, A MILAN holds, A Padua to TREVISO, F Ferrara to BOLOGNA

Your treasury:

Press

Muslims – Pisa, Pope, and Venice: Sorry my friends, all of you, I had to make my try.

Pisa – Muslims: Deal me out will you? Now this war is really in Choas!

Spring 1056 Famine

Bad Year – Row and Column: Ferrara, Rome, Pavia, Arezzo, Albania, Genoa, Modena, Verona, Bergamo, Urbino, Florence, Parma, Aquila

Spring 1056 Income

Provinces and cities that are underlined do no produce income while those that are in italics could change hands depending on retreats.

Dirty Deeds Done Dirty Cheap
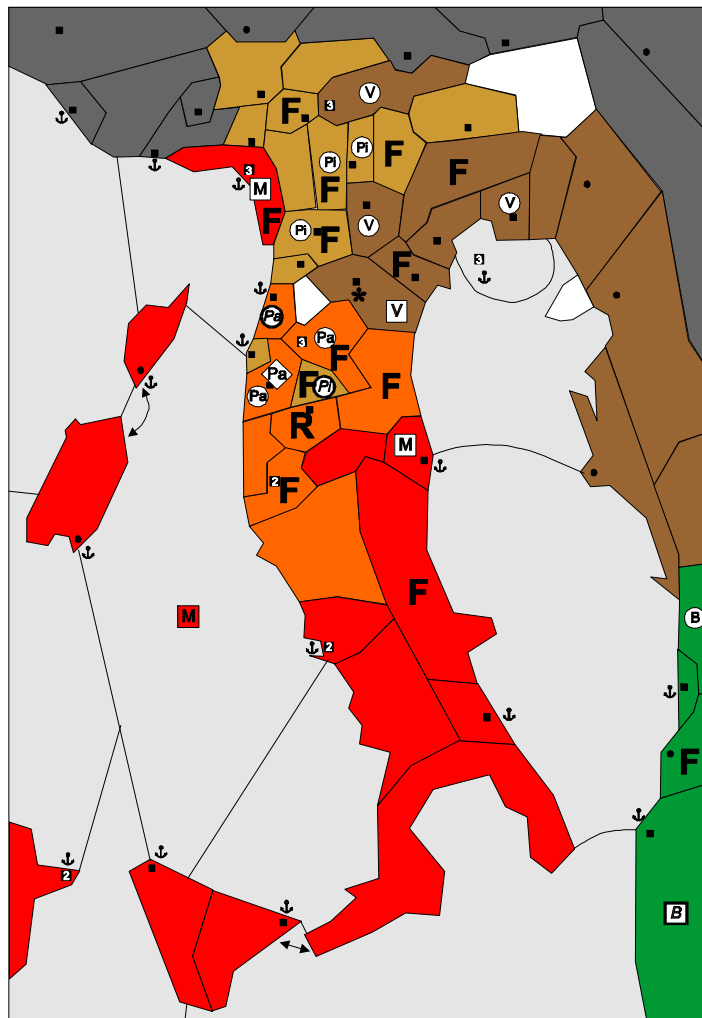
◯ Army ▢ Fleet ◇ Garrison ◆ Autonomous Garrison ◈ Besieged Garrison

Provinces

BYZ	Herzegovina, Ragusa, Albania, Durazzo	3
MUS	Genoa, Corsica, Sardinia, Spoleto, Ancona, Aquila, Naples, Salerno, Bari, Otranto, Messina, Palermo, Tunis	11
PAP	Capua, Rome, Patrimony, Perugia, Sienna, Pisa, Florence, Urbino	4
PIS	Turin, Como, Pavia, Montferrat, Fornova, Parma, Cremona, Bergamo, Trent, Modena, Lucca, Piombino, *Pistoia,* Arezzo	9
VEN	Milan, Mantua, Bologna, Ferrara, Padua, Verona, Treviso, Friuli, Carniola, Croatia, Dalmatia, Bosnia	10

Seas

MUS	Tyrrhenian Sea	1
VENI	Venice	1

Cities

Byz	Ragusa, <u>Albania</u>, Durazzo	2
Mus	<u>Genoa (3)</u>, Corsica, Sardinia, Ancona, Naples (2), Bari, Messina, Palermo, Tunis (2)	10
Pap	<u>Rome (2)</u>, <u>Perugia</u>, Sienna, Pisa, <u>Florence (3)</u>	2
Pis	Turin, <u>Pavia</u>, Montferrat, Cremona, Trent, <u>Modena</u>, Lucca, Piombino, <u>Arezzo</u>	6
Ven	Milan (3), Mantua, Bologna, <u>Ferrara</u>, Padua, Treviso, Carniola, Croatia, Dalmatia, Venice (3)	13

Game Summary

	1051	1052	1053	1054	1055	1056	1057	1058
Byz	3	4	5	6	4	3	3	3
HRE	3	4	4	4	3	0	0	0
Mus	3	3	4	4	6	6	7	9
Nor	1	2	2	1	0	0	0	0
Pap	3	4	6	6	7	7	3	5
Pis	3	5	7	8	6	10	11	9
Ven	3	6	6	6	8	8	10	10

Totals

Variable income die roll was 2.

	Variable	Provinces	Seas	Cities	Gross
Byz	3	3	0	2	8
Mus	4	11	1	10	26
Pap	3	4	0	2	9
Pis	2	9	0	6	17
Ven	3	10	1	13	27

Dogfight
Advanced Rules, Natural Disasters, Special Military Units, Conquest, White Press, Gunboat, Standard Victory
Miller Number 2005Apw10
Fall 1456
Deadline for Winter/Spring 1457 8/1, Tuesday

Venice makes a bold move forcing Austria against the ropes. The final days appear to be here for the Turks as Naples continues to tighten the noose. The Pope gains ground in his fanatical devotion to the destruction of Florence. Finally, France continues quietly on his way.

Summer 1456 Retreats

Papacy retreats A Bologna to Pistoia

Expenditures

Venice spends 18 ducats to buy Austria A Slavonia

Orders

AUSTRIA ✍: A MILAN supports G Trent convert to A, <u>A Carinthia supports G Trent convert to A (cut, DISLODGED, retreat Tyrolea, Slavonia, OTB)</u>, A (EM) Slavonia to Carniola (nsu), G Trent convert to A (DESTROYED)

FLORENCE ✍: <u>A FLORENCE supports A Sienna to Arezzo (cut)</u>, *A (EM) BOLOGNA supports A Florence*, <u>A SIENNA to Arezzo</u>, G Pisa converts to A (DESTROYED)

FRANCE ✍: A MARSEILLES holds, A MONTFERRAT besieges, <u>A PARMA to Cremona</u>

NAPLES ✍: A AQUILA supports G Bari convert to F, F TYRRHENIAN SEA holds, F Central Mediterranean to IONIAN SEA, F Ionian Sea to DURAZZO, F Otranto to LOWER ADRIATIC, G BARI convert to F

PAPACY ✍: A PISA besieges (garrison destroyed), <u>A PISTOIA to Florence</u>, <u>A AREZZO supports A Pistoia to Florence (cut)</u>, A URBINO supports A Pistoia to Florence, A PIOMBINO supports A Pisa

TURKS ✍: F Lower Adriatic to ALBANIA

VENICE ✍: *A (EM) Slavonia to AUSTRIA*, A Friuli to CARINTHIA, A VERONA supports A Friuli to Carinthia, A TRENT besieges (garrison destroyed), A BERGAMO supports A Trent, <u>A MANTUA to Cremona</u>, F Upper Adriatic to DALMATIA, F HERZEGOVINA supports F Upper Adriatic to Dalmatia, F CARNIOLA holds

Your treasury:

Press

Austria – France: Thank you, kind sir!

Austria – Venice: I'll fight to my last breath!

Florence – Pope: All I want is for us to return to our homelands before others grow too large. I can ensure that it will take you at least two more years before you conquer me and by then we both will be mere lackeys to powers bigger than us. I beg of you!

Naples – France and Austria: Dear friends, the big Venice made clear his thoughts about south; after the sudden campaign that he began against you two, he is proving to penetrate deceitfully in the Turkish properties. Thus I will engage him there alone as soon as possible, because Florence and the Pope are too occupied in their questions.

Naples – Venice: Please, again I must ask your immediate disengagement from the south.

Papacy – Florence: Florence is James Bond...I am Goldfinger. Bond is died up and a deadly ray is inching toward him...Bond: Do you want me to talk? Goldfinger: No, Mr. Bond. I want you to die.

Venice – France: You are an honorable ally, as shown by your support of Austria's army in Milan. I will cede Milan to you, should you so desire it... take it when you will. Can we then move south together?

Venice – The Papacy: You may not be belligerent towards Naples, but will he respect that?

Venice – Turks: Sure hope you saw that you needed to do something radical this turn, or theres's nothing I can do to help you.

Spring 1455 Famine

Good Year – No Famine!

Spring 1455 Income

Provinces and cities that are underlined do no produce income while those that are in italics could change hands depending on retreats.

Provinces

Aus	Tyrolea, Milan, Hungary, Slavonia	4
Flo	Bologna, Florence, Sienna	3

FRA	Avignon, Swiss, Marseilles, Provence, Savoy, Montferrat, Genoa, Pavia, Fornova, Parma	10
NAP	Corsica, Sardinia, Tunis, Palermo, Messina, Otranto, Durazzo, Bari, Salerno, Naples, Aquila, Capua	12
PAP	Rome, Patrimony, Perugia, Arezzo, Spoleto, Ancona, Urbino, Pistoia, Pisa, Piombino	10
TUR	Albania, Ragusa, Bosnia	3
VEN	Austria, Carinthia, Trent, Bergamo, Cremona, Mantua, Verona, Padua, Treviso, Friuli, Carniola, Istria, Carinthia, Dalmatia, Herzegovina	15

Seas

NAP	Tyrrhenian Sea, Ionian Sea, Lower Adriatic	3
VEN	Venice	1

Cities

|		
AUS	Tyrolea, Milan (3), Hungary	5
FLO	Bologna, Florence (3)	4
FRA	Avignon, Swiss, Marseilles, Savoy, Genoa (3), Pavia	8
NAP	Corsica, Sardinia, Tunis (2), Palermo, Messina, Durazzo, Bari, Naples (2)	10
PAP	Rome (2), Perugia, Arezzo, Ancona, Pisa, Piombino	7
TUR	Albania, Ragusa	2
VEN	Austria, Trent, Cremona, Mantua, Padua, Treviso, Carniola, Carinthia, Dalmatia, Venice (3)	12

Totals

Variable income die roll was 5.

	Variable	Provinces	Seas	Cities	Gross
AUSTRIA	4	4	0	5	13
FLORENCE	8	3	0	4	15
FRANCE	8	10	0	8	26
NAPLES	3	12	3	10	28
PAPACY	5	10	0	7	22
TURKS	5	3	0	2	10
VENICE	8	15	1	12	36

Game Summary

	1454	1455	1456	1457
Austria:	3	3	5	3
Florence:	3	2	3	2
France:	3	4	3	6
Milan:	3	1	0	0

S.O.B.

	1454	1455	1456	1457
Naples:	4	6	7	8
Papacy:	4	4	5	6
Turks:	3	4	2	2
Venice:	4	6	8	10

Dogfight
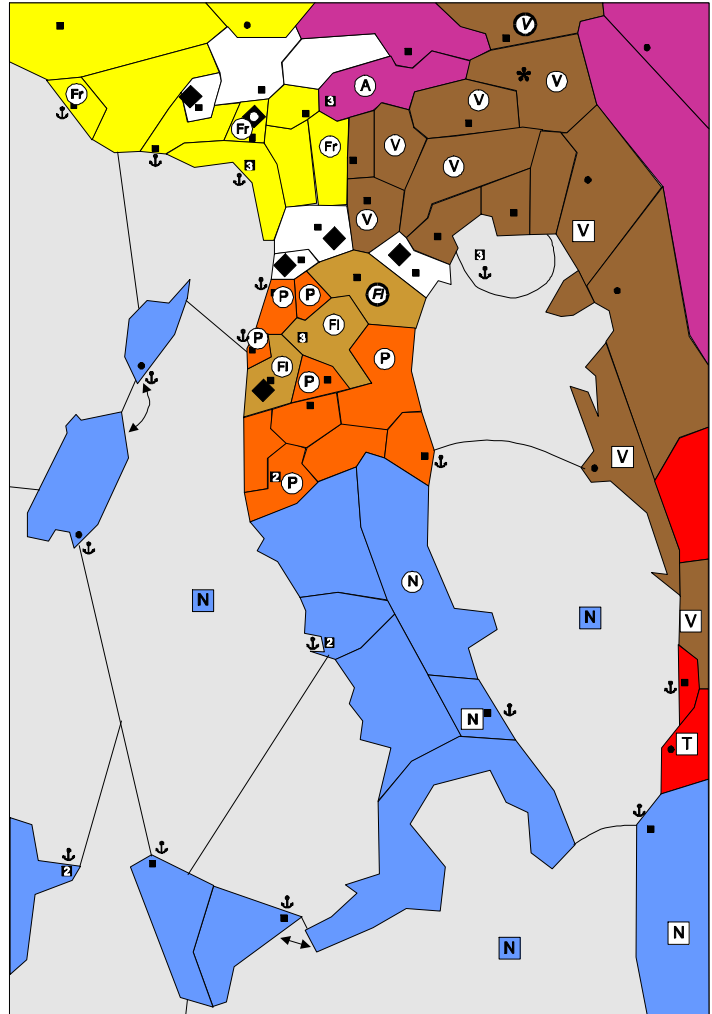
○ Army □ Fleet ◇ Garrison ◆ Autonomous Garrison ◈ Besieged Garrison

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Dogwood
Epoch VI Empire Selection and Ming Dynasty
Epoch VI Timurid Emirates, Incas & Aztecs, and Ottoman Turks due: 8/1 Tuesday

Epoch VI Empire Selection

Royal Manticoran Historical Society (Wilson) passes to The Time Traveler

The Horde (Geggus) passes to Retropolis

Retropolis (Cain) passes to the Turanians

Marching Through the Ages (Lewis) passes to Royal Manticoran Historical Society

Arachnids (Bolduc) keeps

The Time Traveler (Anderson) passes to the Horde

Turanians (Nichols) passes to Marching Through the Ages

Epoch VI

Marching Through the Ages (Lewis) plays Black Death on India and the Middle East (Sassanid army Ganges Valley eliminated, Mongol armies Upper Indus, Lower Indus, and Persian Plateau eliminated, Arab armies Lower Tigris and Levant eliminated). Plays Jewis Revolt (vs. Arabs; J: 6, 4, 3; A: 6; J: 6, 5, 1; A: 3; wins, city and

fort created). MING DYNASTY: Army and Capital Chekiang (Mongol army retreats to Yangste Kian), Si-Kyang (vs. Khmers; M: 6, 1; K: 3; wins), Yangtse Kian (vs. Mongols; Mi: 5, 1; Mo: 5; Mi: 5, 4; Mo: 1; Mi: 6, 6; Mo: 4; wins, city eliminated), Szechuan (vs. Mongols; Mi: 4, 2; Mo: 3; wins, city eliminated), Mekong (vs. Khmers; M: 5, 4; K: 5, 5; M: 5, 1; K: 5, 5; M: 6, 5; K: 2, 2; wins, Capital reduced to city, fleets South China Sea unsupported), fleet South China Sea, army Great Plain of China (vs. Mongols; Mi: 6, 2; Mo: 1; wins), Manchurian Plain (vs. Sung Dynasty; M: 6, 5; S: 2; wins), Korean Peninsula, fleet Sea of Japan (vs. The Time Traveler; MTtA: 2, 2; TTT: 3; loses). Points: Dominance in China (6), Presence in Middle East (2), Southern Europe (2), Northern Europe (2), Southeast Asia (2), Eurasia (1), North America (1), South America (2), and Nippon (1), 2 Capitals (4), 1 city (1), 3 Monuments (3), and 2 Seas (2) for 29 points.

Players

Player Name	Player Faction Name/Color	Empire Strength Points	Victory Points
Kevin Wilson	Royal Manticoran Historical Society (purple)	39	105
Chris Geggus	The Horde (yellow)	42	91
Dennis Cain	Retropolis (red)	44	101
Paul Bolduc	Arachnids (blue)	50	98
Dave Anderson	The Time Traveler (orange)	52	99
Andy Lewis	Marching Through the Ages (green)	56	143
Cary Nichols	Turanians (black)	58	77

Positions

Turanians: Two fleets Red Sea. MACEDONIA: Two armies Pyrenees, army Western Iberia. ARABS: Army, Capital, and Monument Arabian Peninsula, army and Monument Nile Delta, Upper Tigris, armies Palestine, Nubia, Upper Nile, Middle Tigris. SELJUK TURKS: Armies Western Steppe, Persian Salt Desert, Eastern Anatolia, Western Anatolia.

The Horde: Fleet Bay of Bengal. SCYTHEANS: Army Caucuses. MALAYAN KINGDOM: Army, city, and fort Malayan Peninsula. CHOLA: Army, Capital, and Monument Eastern Ghats, armies Ceylon, Western Ghats, Eastern Deccan, Western Deccan.

Marching through the Ages: Fleets North Sea, South China Sea. NORTH AMERICAN MIGRANTS: Army West Indies. MAYANS: Army and Capital Central America, army Guyana Highlands. HSUING-NU: Two armies Yellow River. T'ANG DYNASTY: Army and fort East Indies. VIKINGS: Armies Scandinavia, Western Gaul, Central Massif, Lower Rhein. JEWS: Army, city, and fort Palestine. MING DYNASTY: Army, Capital and Monument Chekiang, army and Monument Yangtse Kian, Szechuan, armies Si-Kyang, Great Plain of China, Mekong, Manchurian Plain, Korean Peninsula.

Retropolis: Fleets Black Sea, Eastern Mediterranean. CHOU DYNASTY: Two armies Irrawaddy. IBERIAN KINGDOM: Army, city, and fort Southern Iberia. HAN DYNASTY: Army Eastern Steppe. BYZANTINES: Army and Capital Balkans, armies Danubia, Dalmatia, Pindus, Morea. HOLY ROMAN EMPIRE: Army, Capital, and Monument Central Europe, army and Monument Albion, armies Northern Gaul, Dniepr, North European Plain.

Royal Manticoran Historical Society: Fleet Western Mediterranean. GUPTAS: Two armies Sumatra. FRANKS: Army and Monument Southern Apennines, army Northern Apennines

The Time Traveler: GOLD COAST KINGDOM: Army, city, and fort Gold Coast. MONGOLS: Army, city, and Monument Hokkaido, army and Monument Tarim Basin, Zagros, armies Mongolia, Wei River, Turanian Plain, Hindu Kush.

Arachnids: SUB-SAHARAN MIGRANTS: Armies Central Africa and Congo Basin. ROMANS: Army, city, and Monument Shatts Plateau, army Libya. ANGLO-SAXONS: Armies Baltic Seaboard, Ireland. CIVIL WAR: Armies Persian Salt Desert, Ganges Delta. REBELLION: Army Crete.

Event Cards   Epoch VI Empire

Salty Dog
Seafarers of Catan
Turns 9.2 to 10.2
Deadline Turns 10.3 to 11.3 8/1, Tuesday

Turn 9

Dave rolls a 7. Dave moves the Robber to the 9 Forest space on the southwest island and steals Kevin's brick. Dave moves his ship at G13 – G12 to H14 – H15 and discovers ocean. Dave trades 3 grain for a wool.

Cary rolls an 5. Kevin gains 1 ore, Dave gains 2 lumber, Cary gains 1 brick, Bill gains 1 wool, Chris gains 1 lumber, and Ward gains 1 brick. Passes.

Bill rolls a 10. Kevin gains 2 wool, and Cary and Chris each gain 1 brick. Builds a road from C18 to C19. During the special build turn, Ward builds a road from B19 to C19, Dave builds a ship from H15 to H16.

Chris rolls a 9. Cary and Ward each receive 1 ore, and Dave and Kevin each receive 1 grain. Trades 3 grain for 1 wool at the ? port and builds a ship from F6 to F5 (discovers Pasture 4, gains wool). During the special build turn, Kevin buys a development card (   ).

Ward rolls a 6. Dave gains 2 brick, Cary gains 1 brick, and Bill gains 1 ore. Passes.

Turn 10

Kevin rolls a 5. Kevin gains 1 ore, Dave gains 2 lumber and 1 brick, Cary gains 1 brick, Bill gains 1 wool, Chris gains 1 lumber, and Ward gains 1 brick. Passes.

Dave rolls a 6. Dave gains 2 brick, Cary gains 1 brick, and Bill gains 1 ore. Trades 3 brick for 1 wool and builds a ship from H16 to H17 (discovers ocean).

Open Trades

None

The Players

Player	Color	Grain	Wool	Brick	Lumber	Ore	Development Cards	VP
Kevin Wilson	Green		1			1	1 Unknown ( )	5*
Dave Partridge	Red	3		3	2			3
Cary Nichols	Purple	2		5		4		2
Bill Scharf	Blue		2	1	1	2		3
Chris Geggus	Yellow		1	3	1		1 Knight, 1 Unknown ( )	3
Ward Narhi	Brown	1		1		1	1 Knight	3

* Longest trade route
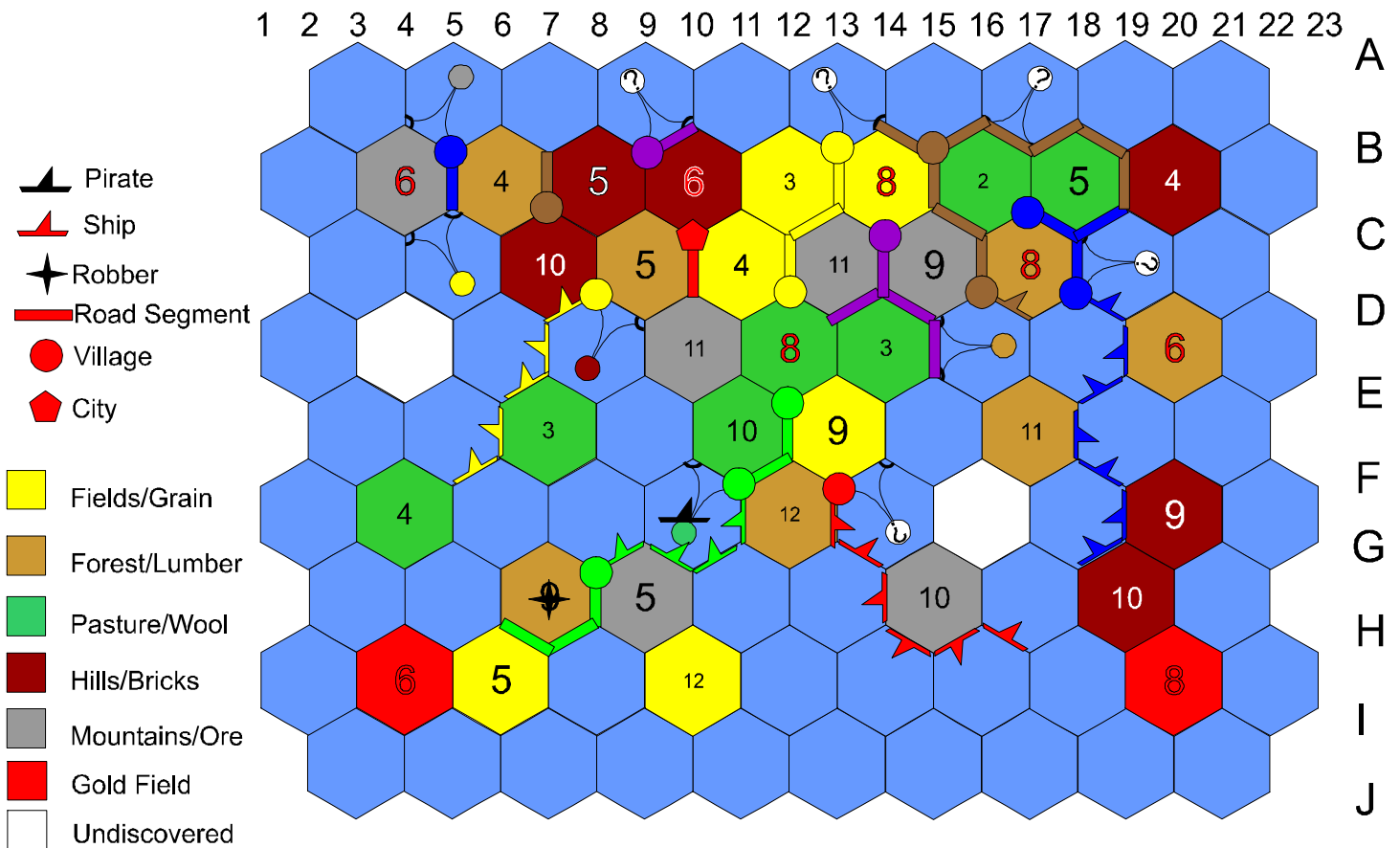
Dog Chow
Age of Renaissance
Turn 2 Phases 4 through 6
Deadline Turn 2, Phase 7 and Turn 3, Phases 1 through 3 8/1, Tuesday

Phase 4: Purchase

Paris buys Nationalism for $40 (W, 20 credit for Charlemagne) and stabilization for $1.

Genoa buys Galley 4 for $10, Patronage for $30 (E, Misery increases to 10), Written Record (N, 10 credit for Rashid ad Din and 20 credit for Dionysus Exiguus), and stabilization for 1$.

Hamburg pays $10 for Galley 4 and $1 for stabilization

London buys Galley 4 for $10, The Heavens for $30 (A), and stabilization for $3.

Barcelona buys Patronage (E) for $30 (misery increases to 20), Written Record (N, 20 credit for Dionysus Exiguus and 10 credit for Rashid ad Din), Overland East (R, 20 credit for Rashid ad Din) for $20, Galley 2 for $10, and stabilization for $1.

Venice buys Galley 4 for $10 and stabilization for 1$.

Phase 5: Expansion

Paris expands to Nuremburg (3), and Prague (2).

Genoa expends to Tunis (4), Algiers (2), Sicily (2), Tripoli (2), Athens (1), and Naples (3).

Hamburg buys a card (3,   ), expands to Bergen (3), Stockholm (3), Danzig (5)

London expands to Chester (3), Waterford (2), Iceland (2), Armagh (1), Wales (1), Shetland (1), buys a card (6,   )

Barcelona expands to Basque (2), Toledo (3), Valencia (2), Seville (3), Grenada (2), Fez (2), Cagliari (1), Toulouse (1), Leon (1)

Venice expands to Budapest (3), Crete (3), Salonika (2), Salzburg (1), Sicily (4, vs. Genoa, dr = 6, 5, 3; wins), Tripoli (4, vs. Genoa, dr = 2, 4, 3, wins), Algiers (4, vs. Genoa, dr = 3, 5, 6; loses), Breslau (1), Esseg (1), Athens (2, vs. Genoa, dr = 2, 5, 6; loses), Corfu (1)

Barcelona gains the extra card (   )

Phase 6: Income

Paris gains $63   **Genoa** gains $63   **Hamburg** gains $51   **London** gains $57   **Barcelona** gains $81   **Venice** gains $69

Surplus of Fur (Pairs pays $1), Shortage of Stone (Genoa gains   )

Turn 3, Phase 1: Draw Cards

Your card is:

Epoch II began after London's draw and before Barcelona's.

The Players

Player	Country	Misery	Tokens	Money	Order	Dominance	Ships	Advances
Paul Bolduc	Barcelona	20		$97		11	2	E, I, N, R
Cary Nichols	Hamburg	0		$66		6	4	
Bob Robles	London	0		$70		7	4	A
Dennis Cain	Venice	0		$82		9	4	
Steve Koehler	Genoa	10		$69		8	4	N, E
Michael Longdin	Paris	10		$81		8		I, W

Players are listed in reverse tie breaking order.

Commodity Log

Commodity	Bob	Cary	Michael	Steve	Paul	Dennis
Stone (2)	--	1	2	3	1	1
Wool (3)	4	--	--	1	2	--
Timber (4)	--	2	--	--	2	1
Grain (5)	1	1	1	--	1	2
Cloth (6)	--	1	1	3	--	2
Wine (7)	--	--	1	--	3	1
Metal (8)	1	1	1	1	1	--
Fur (9)	--	--	1	--	--	--
Silk (10)	--	--	--	--	1	1
Spice (11)	--	--	--	--	--	--
Gold (12)	--	--	1	--	--	--
Ivory (12)	1	--	--	--	--	1

Shortage, *Surplus*

Cards

Sled Dog
Kremlin
Turn 2, Funeral Commission through Parade
Deadline Turn 3, Cure through Health 8/1, Tuesday

Funeral Commission

BAMBI declares 1 IP on Bungaloff, and 3 IP on Satin. RODT declares 4 IP on
Manjak, 1 IP on Bungaloff, and 3 IP on Satin. (BAMBI won the tie breaker roll.)

Replacement Phase

TI declares 4 more IP on Manjak. Manjak moves Boris Badenuff to KGB Head and waves.
Mikail Strychnin to Defense Minister.

Rehabilitation Phase

None

Parade Phase

SPY declares 7 IP on Manjak, and TI counters with 3 more IP on Manjak. Manjak

Politburo

Office	Policitian	Condition	Influence
Party Chief	Iwan Manjak (P)	63	**8 (TI)**, 4 (RODT),7 (SPY)
KGB Head	Boris Badenuff (X)	55	**3 (TI)**, 2 (BAMBI)
Foreign	Antonj Talksalott (J)	72, ?	**1 (TCC)**
Defense	Mikail Strychnin (T)	64	2 (TCC), 9 (SPY), **10 (TI)**
Ideology	**Igor Doberman (L)**	65, ++	1 (100%S), **2 (BAMBI)**
Industry	Alexei Goferbrok	74, +	

Office	Policitian	Condition	Influence
	(C)		
Economy	Oleg Satin (O)	63, ?	1 (TCC), 2 (SPY), **3 (BAMBI)**, 3 (RODT)
Sport	Leonid Bungaloff (W)	54, strong	1 (RODT), **1 (BAMBI)**

Politicians in **bold** are in the sanatorium.
Candidates:
People: D, E, G, H, I, K, M, N, R, S, Y, Z
Siberia: B, F, Q, U, V
Kremlin Wall: A

Players

Player	Faction Name
Chris Geggus	Soviet Precocious Youths
Bill Scharf	Trotskyite Internationalists
Dennis Cain	Russian Olympic Drinking Team (RODT)
Bob Robles	Byelorussians Against Much Byzantine Interference (BAMBI)
Mike Scott	The California Connection
Michael Longdin	100%Stalinists

Intrigue Cards

Undeclared Influence

Sirius
Merchant of Venus
Turns 2.2 to 3.2
Turns 3.3 to 4.3 8/1, Tuesday

Turn 2

2nd: **Dave Partridge (Whynoms/Venus-Orion Oligarch Merchanile) Rolls Used: 3 4 4**
Space Station Planet - ? (it's the Auto Pilot relic).
Stops and picks up relic.

3rd: **Paul Bolduc (Eeepeeep/R. Olivaw) Rolls Used: 4 * 4**
Cobbleport(s) – Cobbleport(o) – R – Y – B – R – B – Y – B – R – B – Golaith(o) – B – Greathome(o) – Greathome(s).
Discovers Cholos (from the cup: Impossible Furniture at 8, Psychotic Sculpture at 10, Impossible Furniture at 8, and Immortal Grease at 6). Buys a shield for $60.

4th: **Dennis Cain (Niks/Space Revolver) Rolls Used: 1 2 5**

Interstellar Biosphere.
Trades in IOU plus $20 for a Red Drive.

5th: **Chris Geggus (Qossuth/Atlantis) Rolls Used: 3 * 3**
Interstellar Biosphere – R – B – R – NC3 – NC3 - ? (It's the TeleGate 2) – NC3 – R – Y.

6th: **Bob Robles (Dell/Dells Without Names) Rolls Used: 4 6**
Y40 – NC40 – NC4 - ? (It's an Open Port) – NC4 – R – Y - ? (It's an Open Port).
Discovers Eeepeeep (from the cup: Demand for Pelts at 6, Finest Dust at 4a, Bionic Perfume at 1a, and Psychotic Sculpture at 10).

Turn 3

1st: **Andy Lewis (Humans/Mystery Machine 4) Rolls Used: 2 4 4 (uses Auto Pilot)**
Wet Landing(s).
Sell Megalith Paperweight for $160 (from the cup: Demand for Liquor at 8).
Buys Voll Silk for $140.

2nd: Dave Partridge (Whynoms/Venus-Orion Oligarch Merchanile) 2 4 4 (uses Auto Pilot)
A – NC4 – NC4 – Open Port – NC4 – R – Y – Open Port – Y – B – R.

Currently available:
1a (Nillis): 2 Bionic Perfume
1b (Volois): Nothing
2 (Graw): Space Sice, Fare to 10 ($120)
3 (Niks): 3 Mulch Wine, Demand for Space Spice (+$60)
4a (Dell): 3 Finest Dust
4b (Humans): 4 Rock Videos, Demand for Space Spice (+$40)
5 (Shenna): 2 Melf Pelts, Demand for Finest Dust (+$50)
6 (Yxklyx): 2 Immortal Grease, 2 Demand for Melf Pelts (+$50)
7a (Zum): Chicle Liquor

7b (Eeepeeep): 2 Servo-Mechanism, Demand for Immortal Grease (+$50), Fare to Base ($110)
8 (Whynoms): 3 Impossible Furniture, Demand for Chicle Liquor (+$60)
9a (Cholos): 4 Designer Genes, Demand for Immortal Grease (+$50), Demand for Chicle Liquor (+$60)
9b (Wollow): Demand for Impossible Furniture (+$70), Fare to 5 ($110)
10 (Qossuth): 3 Psychotic Sculpture, Demand for Designer Genes (+$60)
Base: Nothing

1. Mystery Machine 4 — $65
Normal Scout
4: 1 3 4
Hold1 Hold2 Hull
Voll Silk 1b/$220 | Voll Silk 1b/$220

2. VOOM — $110
Fast Scout
4: 3 3 (Double 1)
Hold1 Hold2 Hull
Space Spice 2/$80 | RELIC Auto Pilot 4 $80

3. R. Olivaw — $80
Rocket Scout
3: 2 4// 4: 2 4 (Use 1 * 4)
Hold1 Hold2 Hull
Shield ($60)
10 $120 | 9a $90

4. Space Revolver — $70
Sports Scout
3: 1 1 6 6 (Use 3)
Hold1 Hold2 Hull
Immortal Grease 6/$100 | Red Drive ($120)

5. Atlantis — $140
Torch Scout
3: 6 (Times 3)
Hold1 Hold2 Hull
Eq.

Scow Scout — $140
3: 1 2 2 3 (Use 2)
Hold1 Hold2 Hull
7b $100

Outlaw Dogs
Setup
Turn 1 due 6/20, Tuesday

Addendum

With the exception of Border Rider's H44, all two handed weapons are in the players' Other Hand, not Holstered.

Actions

Segment 1

The Kid: Card B2 – Draw and Cock (C45 cocked to Gun Hand, W44 is
                     dropped), segment 1 of 1

Border Rider: Card (1) – Back up (straight to F3), segment 1 of 2

Gun Artist: Card (1) – Back up (left to G9), segment 1 of 2

Innocente: Card (1) – Back up (straight to D4), segment 1 of 2

Drifter: Card B3 – Draw and Cock (W44 cocked to both hands), segment
                     1 of 2

El Jefe: Card 9 – Draw and Cock (W44 to both hands), segment 1 of 3

Segment 2

The Kid: Card (B2) – Shoot (at G, total effective aim time = 4, shot
                     misses, card 43 drawn), segment 1 of 1

Border Rider: Card (1) – Back up (straight to F3), segment 2 of 2

Gun Artist: Card (1) – Back up (left to G9), segment 2 of 2

Innocente: Card (1) – Back up (straight to D4), segment 2 of 2

Drifter: Card B3 – Draw and Cock (W44 cocked to both hands), segment
                     2 of 2

El Jefe: Card 9 – Draw and Cock (W44 to both hands), segment 2 of 3

Segment 3

The Kid: Card 5 – Cock/Aim/Shoot (cocks C45), segment 1 of 2

Border Rider: Card 5 – Cock (H44), segment 1 of 2

Gun Artist: Card (5) – Get Down, segment 1 of 3

Innocente: Card 9 – Draw and Cock (R10, cocked, to both hands), segment
                     1 of 3

Drifter: Card 5 – Aim (at J), segment 1 of 2

El Jefe: Card 9 – Draw and Cock (W44 to both hands), segment 3 of 3

Segment 4

The Kid: Card 5 – Cock/Aim/Shoot (cocks C45), segment 2 of 2

Border Rider: Card 5 – Cock (H44), segment 2 of 2

Gun Artist: Card (5) – Get Down, segment 2 of 3

Innocente: Card 9 – Draw and Cock (R10, cocked, to both hands), segment
                     2 of 3

Drifter: Card 5 – Aim (at J), segment 2 of 2

El Jefe: Card 5 – Cock/Aim/Shoot (Cock W44), segment 1 of 2

Segment 5

The Kid: Card 7 – Shoot (at D, total effective aim time = 4, misses, card
                     54 drawn), segment 1 of 1

Border Rider: Passes

Gun Artist: Card (5) – Get Down, segment 3 of 3

Innocente: Card 9 – Draw and Cock (R10, cocked, to both hands), segment
                     3 of 3

Drifter: Passes

El Jefe: Card 5 – Cock/Aim/Shoot (Cock W44), segment 2 of 2

End of Turn

No actions.

Westerners

Side	Player	Character	Location	Bonus Cards	Skills	Delay	Endurance	Comments
A	Paul Bolduc	The Kid (K)	F8>F7	2, 2	1H +3, OH -1		20	
B	Andy Lewis	Border Rider (B)	F3>F4	3	1H +2, 2H +2		20	
C	Dave Partridge	Gun Artist (G)	G9>F8		1H +3, 2H +3, OH 0		20	Down
D	Jerry Roalstad	Innocente (I)	D4>E5	7, 8	1H +2		25	
E	Chris Geggus	Drifter (D)	D7>E7	3	2H +2		20	2 aim points on J
F	Mike Scott	El Jefe (J)	H5>G6		2H +2		20	

Weapons

Character	Holstered	Gun Hand	Other Hand	Both Hands	Ammo
The Kid	C32, Knife	C45 (uncocked)	Empty	Empty	C45: OOOO☞☞ C32: OOOOO
Border Rider	C45, R41d	Empty	Empty	H44 (cocked)	H44: OOOOOOOOOOOOOO C45: OOOOOO R41d: OO
Gun Artist	C45, SW38	Empty	W44	Empty	W44: OOOOOOOOOOOOOOOO C45: OOOOO SW38: OOOOO

Character	Holstered	Gun Hand	Other Hand	Both Hands	Ammo
Innocente	C45, C45, Knife	Empty	Empty	R10 (cocked)	R10: OO C45: OOOOOO C45: OOOOOO
Drifter	C44, C32, Knife	Empty	Empty	W44 (cocked)	W44: OOOOOOOOOOOOOOOO C44: OOOOOO C32: OOOOO
El Jefe	C44, C44, Knife	Empty	Empty	W44 (cocked)	W44: OOOOOOOOOOOOOOOO C44: OOOOOO C44: OOOOOO

On the ground in F8: W44: OOOOOOOOOOOOOOOO

Outlaw Dogs
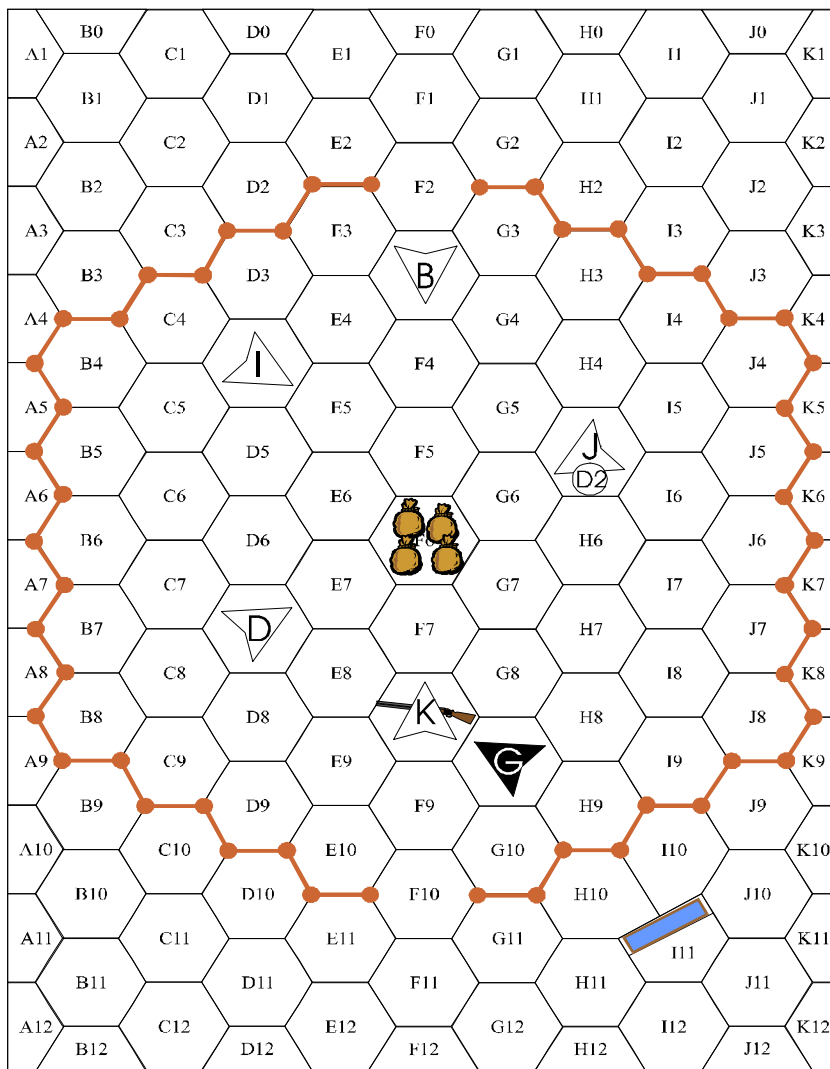
Fence		Money Bag
Water Trough		Player (down)
Player (up)		Gun (two handed)
Gun (one handed)		Aim Points
Knife		

Doberman
Turn 1a
Turn 1b due 8/1, Tuesday

Available Cards

Set 1	Set 2	Set 3	Set 4	Set 5
Innovation	Growth	Innovation	Advisor	Waste Disposal
Order	Raw Materials	Growth	Waste Disposal	Raw Materials
Growth	Waste Disposal	Order	Growth	Order

Michael selects set 1   Dave selects set 3   Richard selects set 4   Eric selects set 5

Press

Richard (PIT) – All: Hello Michael, watch out for the other two guys, especially Eric, he always finishs ahead of me. Dave has GM'd so many games he must have the best strategy - certainly has learned what not to do from me!

Richard (PIT) – GM: I apologize for not knowing I had the opportunity to play Doberman. I am assuming we get the opportunity to have company names, if not, here are my thoughts. I want to be "PIT" as in both a cesspool or pit of industrial waste and as the affectionate short name for "Pit Bull" since this game is for the dogs!

GM – PIT: I certainly have no objection to company names. Let's see how imaginative the rest of the players can be.

The Players

Player	Company Name	Play Order	Money	Loans	Raw Material Supply	Growth	Co-workers	Saved Card
Michael Longdin		1	$15	0	5	14	5	
Dave Partridge		2	$15	0	5	14	5	
Richard Weiss	PIT	3	$15	0	5	14	5	
Eric Brosius		4	$15	0	5	14	5	

Player	Rationalization	Raw Materials	Waste Reduction	Waste Disposal	Victory Points
Michael Longdin	5/1	5/1	5/1	0	25
Dave Partridge	5/1	5/1	5/1	0	25
Richard Weiss	5/1	5/1	5/1	0	25
Eric Brosius	5/1	5/1	5/1	0	25

Cards

Michael	Dave	PIT	Eric
Innovation	Innovation	Advisor	Waste Disposal
Order	Growth	Waste Disposal	Raw Materials
Growth	Order	Growth	Order

The Accident card was drawn to no effect. The deck will be reshuffled before the card draw of turn 1b.

Discards

Accident   Growth

Jackal
Turn 1
Turn 2 due 8/1, Tuesday

Bidding

French bid $2, select landing H, $2 to the Dutch

English bid $0, select landing R

Portuguese bid $0, select landing U

Swedes bid $0, select landing Y

Spanish bid $0, select landing J

Dutch bid $0, select landing O

Outbound Naval Movement

French Dice: 2, 4, 5. No losses.

English Dice: 1, 2, 3, 5. Loses 1 soldier.

Portuguese Dice: 1, 4, 4, 5. Loses 1 colonist.

Swedes Dice: 1, 2, 3, 3, 3. No losses.

Spanish Dice: 1, 2, 2, 3. No losses.

Dutch Dice: 2, 3, 5. No losses.

Planning

French buy 3 ships ($36) and 2 soldiers ($20) for $56.

English buy 4 ships ($48) and 4 soldiers ($40) for $88.

Portuguese buy 3 ships ($36) and 2 soldiers ($20) for $56.

Swedes buy 3 ships ($36) and 2 soldiers ($20) for $56.

Spanish buy 4 ships ($48) and 3 soldiers ($30) for $78.

Dutch buy 4 ships ($48) and 4 soldiers ($40) for $88.

Land Movement

French move 4 colonists and 2 soldiers into area H. It is a climate 2 area with the x2 city and 4 natives.
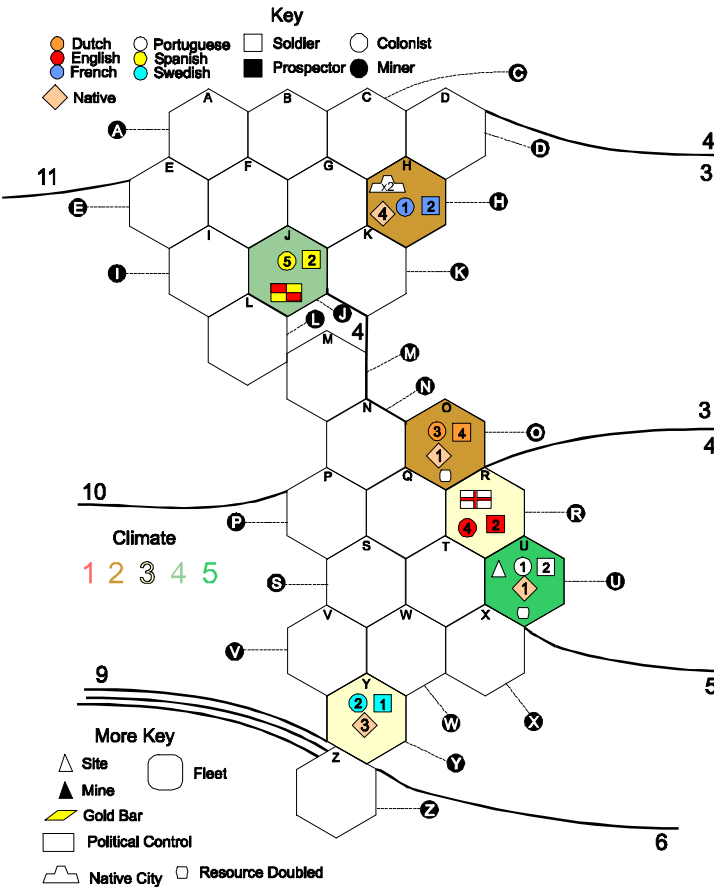
English move 3 soldiers and 4 colonists into area R. It is a climate 3 area with 1 native.

Portuguese move 3 colonists and 2 soldiers into area U. It is a resource rich climate 4 area with one sites and 1 native. Two soldiers prospect.

Swedes move 4 colonists and 2 soldiers into area Y. It is a climate 3 area with 3 natives.

Spanish move 5 colonists and 3 soldiers into area J. It is a climate 4 area with 2 natives.

Dutch move 4 soldiers and 4 colonists into area O. It is a resource rich climate 2 area with 1 native.

Key

Dutch, English, French — Native
Portuguese, Spanish, Swedish
Soldier — Colonist
Prospector — Miner

Climate

1 2 3 4 5

More Key

△ Site
▲ Mine
▱ Gold Bar
▢ Political Control
⌂ Native City   ▢ Resource Doubled
▭ Fleet

Native Combat

English: 1 native killed. **Spanish:** 2 natives and 1 soldier killed.

Native Uprisings

Climate is a 1. Uprisings in H (2 colonists killed), O (0 colonists killed), U (2 colonists killed), and Y (2 colonists killed).

Survival

Climate is a 4.

French lose 1 colonist. **Dutch** lose 1 colonist. **English** lose 1 soldier. **Swedes** loses 1 soldier.

Political Control

Spanish gain political control of J. **English** gain political control of R.

Homebound Naval Movement

French: Dice: 2, 3, 6. No losses.

English: Dice: 2, 3, 3, 6. No losses.

Portuguese: Dice: 2, 3, 3, 5. No losses.

Swedes: Dice: 1, 1, 3, 6, 6. 2 ships lost.

Spanish: Dice: 1, 1, 2, 6. 2 ships lost.

Dutch: Dice: 3, 4, 5. No losses.

Income

French: Political Control: $20, resources: $1.

English: Political Control: $40, resources: $4.

Portuguese: Political Control: $20, resources: $2.

Swedes: Political Control: $20, resources: $2.

Spanish: Political Control: $40, resources: $5.

Dutch: Political Control: $20, resources: $6.

Turn 2 Initiative

English, French, Portuguese, Spanish, Dutch, Swedes

Players

Country	Player	Money	Available Soldiers	Ships	Colonists
Dutch	Dave Partridge	$160	24	0	0
English	Bob Robles	$160	24	0	0
French	Andy Lewis	$160	24	0	0
Portugese	Brendan Whyte	$160	24	0	0
Spanish	Andy York	$160	24	0	0
Sweedish	Cary Nichols	$160	24	0	0

Pedagoguery

Since 1998, when the first evidence was found that the expansion of the universe is accelerating, scientists have wondered about the nature of the "stuff" responsible for that expansion. Labeled dark energy, for lack of a better term, it appears to be constant through space and time. Furthermore, evidence of existence, although indirect, continues to accumulate. It must be out there, but what exactly is "it?"

The evidence for the existence of dark energy is quite strong. In fact, three independent lines of evidence have arisen to support the concept. The first was the survey of high redshift supernovae. This survey was looking for a special kind of supernova, called a Type 1a supernova. In this kind of supernova, a white dwarf accumulates enough matter from a companion star to cross the Chandrasekhar limit. This is the theoretical mass limit above which a white dwarf must collapse. When this happens, the carbon and oxygen that comprise the core of the white dwarf undergoes a runaway fusion reaction, blowing the star apart. Because the mass for all of these objects is the same, 1.4 times the mass of the sun, in theory, they should all explode with the same brightness, making them a good standard candle. This allows scientists to determine how far away they are by looking at their apparent brightness and comparing it with what it should be.

Using the Hubble space telescope, astronomers have been able to look back to a redshift of nearly 2, back to a time when the universe was one third of its current size, and the evidence is clear – the universe is expanding. By comparing the results to models, we come up with a universe consisting of about 5% normal matter, 25% dark matter, and 70% dark energy.

A second line of evidence comes from the Wilkinson Microwave Anisotropy Probe (WMAP). This is a satellite that observes the cosmic background radiation and looks for minute fluctuations. The microwave background radiation is what physicists call a blackbody spectrum. Essentially, any object radiates a specific spectrum based on its temperature. The characteristic temperature of the microwave background radiation is 3.7 degrees K, or 3.7 degrees above absolute zero. However, there are tiny fluctuations in the spectrum, amounting to only one part in 100,000. The size of these fluctuations can tell us some fundamental facts about the composition of our universe, and the analysis of the WMAP data gives us a universe with about 5% normal matter, 25% dark matter, and 70% dark energy.

The third line of evidence arises from studies of galaxy clustering. Scientists have run various computer models of the large scale evolution of the universe.

They vary the initial conditions – proportion of normal matter to dark matter (which can be cold, hot, or warm), and dark energy. By comparing the models with what is observed, they find that the observations fit best a universe with about 5% normal matter, 25% dark matter, and 70% dark energy.

This convergence of evidence is quite remarkable. Three independent lines all arriving at nearly the same answer. Either that answer is correct, or we have some very fundamental misunderstandings in the laws of physics. Given how closely other observations fit with our understanding of physical laws the first explanation is by far the more likely one.
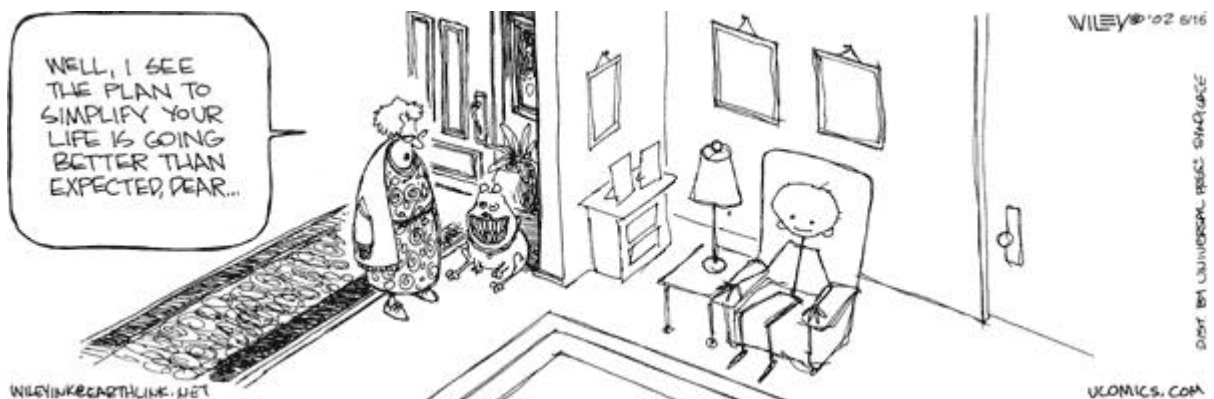
That still leaves us with the question: what is dark energy? Unfortunately, we still have no good answers. A number of candidates have arisen, but none of them are quite satisfactory. The first of these is something called vacuum energy. According to quantum mechanics, at very small scales, virtual pairs of particles are constantly being created and destroyed in the vacuum. They are called virtual because they cannot be directly observed – they exist for too short a time to be observable within the constraints of the Heisenberg Uncertainty Principal. However, their collective effect can be, and has been, observed, so we know this is true. The collective effect of these particle pairs can be the same as Einstein's cosmological constant, which is to say, a large scale repulsive force – sort of an anti-gravity that only works on very large scales. This is also how dark energy seems to work. So far, so good. There is one major problem, however. Simple efforts to calculate how strong vacuum energy should be come up with a figure that is 10^{120} times too high. This is a phenomenally large number. If the cosmological constant were that high, the universe would have exploded into a size so large so fast that atoms couldn't have formed. We certainly wouldn't be around to be observing such a universe, so clearly something is wrong. This is in fact the single most embarrassing discrepancy between theory and observation in all of physics.

There are other possibilities, but they too have their drawbacks. One possibility uses vacuum energy, but postulates that it is different in different places in the universe. This would mean that there are different domains within the universe, each expanding at different rates, and that life does not arise in domains where vacuum energy is large. However, this is in one sense, simply throwing up your hands and giving up on the problem. It gives up the possibility that the problem can be solved from first principals and just says, in effect, that it is because it is. A second possibility is that the value of dark energy is constant in space, but varies over time. Thus, it could have been much smaller or larger in the past. In once sense, the concept of inflation supports this idea. This concept is called quintessence, and careful observations are being made about the long term magnitude of dark energy to confirm or rule out this possibility. A final possibility denies the existence of dark energy at all, and instead postulates a modification to General Relativity, Einstein's theory of gravity. The problem with this is that it is very hard to modify general relativity without violating existing observations and experimental constraints.

The problem of dark energy is one of the most puzzling and intriguing problems in modern physics, and scientists are working on a number of ways to further investigate the phenomenon. It is possible that we will find an answer within our lifetimes, but it is also possible that the mystery will endure.

Next issue I will talk about an intriguing idea call dark energy stars.

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Standbys

Anybody who gets onto my standby list automatically receives one free issue of *S.O.B.* In addition, if you actually submit standby orders, you get another free issue. So, let's get those people standing by. The current standby list is:

Machiavelli (gunboat and regular): Steve Koehler, Bill Scharf, Bob Robles, Mike Scott, Ward Narhi, Paul Bolduc, Pasquale Giovine, Andy York, Cary Nichols, Lee McConnell, Dave Partridge, Dale Horsely **Dune:** Steve Koehler, Paul Bolduc, Kevin Wilson, Ward Narhi, Andy York, Cary Nichols, Bill Scharf, Dave Partridge **New World:** Andy York, Bill Scharf, Cary Nichols, Dave Partridge **Merchant of Venus:** Paul Bolduc, Carrie Lewis, Bob Robles, Andy York, Cary Nichols, Dave Partridge **Outpost:** Michael Lowrey, Kevin Wilson, Andy York, Cary Nichols, Bill Scharf, Dave Partridge **History of the World:** Andy Lewis, Paul Bolduc, Kevin Wilson, Chris Geggus, Andy York, Cary Nichols, Dave Partridge **Stellar Conquest:** Paul Bolduc, Kevin Wilson, Andy York, Cary Nichols, Dave Partridge **Liftoff!:** Dennis Cain, Andy York, Cary Nichols, Bill Scharf, Dave Partridge **Age of Renaissance:** Bob Robles, Michael Lowrey, Cary Nichols,Dave Partridge, Michael Longdin **Kremlin:** Andy York, Andy Lewis, Pasquale Giovine, Cary Nichols, Bill Scharf, Dave Partridge, Michael Longdin **Silverton:** Cary Nichols, Bill Scharf, Dave Partridge **Settlers of Catan:** Michael Lowrey, Chris Geggus, Cary Nichols, Dave Partridge **Gunslinger:** none **Industrial Waste:** Michael Longdin

Standby Calls

None this issue

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